

# Course Outline

## Computer Science B.Sc.

valid for students who have started their studies from winter semester 2023/2024 onwards

Faculty of Informatics and Data Science



**Universität Regensburg**  
**FAKULTÄT FÜR INFORMATIK UND DATA SCIENCE**

## Compulsory Modules

Module Position	Subject Area	Credits	Notes
<b>INF-BSC-P01</b>	<b>Introduction to Theoretical Computer Science I</b>	<b>6</b>	
INF-BSC-P01.1	Lecture on Introduction to Theoretical Computer Science I	4	
INF-BSC-P01.2	Tutorial on Introduction to Theoretical Computer Science I	2	
<b>INF-BSC-P02</b>	<b>Programming I</b>	<b>6</b>	
INF-BSC-P02.1	Lecture on Programming I	4	
INF-BSC-P02.2	Tutorial on Programming I	2	
<b>INF-BSC-P03</b>	<b>Human-Computer Interaction</b>	<b>6</b>	
INF-BSC-P03.1	Lecture on Human-Computer Interaction	4	
INF-BSC-P03.2	Tutorial on Human-Computer Interaction	2	
<b>INF-BSC-P04</b>	<b>Computer Science and Society</b>	<b>3</b>	
INF-BSC-P04.1	Lecture Series on Computer Science and Society	3	
<b>INF-BSC-P05</b>	<b>English for Computer Science</b>	<b>3</b>	
INF-BSC-P05.1	Language Course English for Computer Science	3	
<b>INF-BSC-P06</b>	<b>Mathematics 1 FIDS - Foundations and Linear Algebra I</b>	<b>6</b>	
INF-BSC-P06.1	Lecture on Foundations of Mathematics	2	
INF-BSC-P06.2	Tutorial on Foundations of Mathematics	1	
INF-BSC-P06.3	Lecture on Linear Algebra I	2	
INF-BSC-P06.4	Tutorial on Linear Algebra I	1	
<b>INF-BSC-P07</b>	<b>Programming II</b>	<b>6</b>	
INF-BSC-P07.1	Lecture on Programming II	4	
INF-BSC-P07.2	Tutorial on Programming II	2	
<b>INF-BSC-P08</b>	<b>Algorithms and Data Structures</b>	<b>6</b>	
INF-BSC-P08.1	Lecture on Algorithms and Data Structures	4	
INF-BSC-P08.2	Tutorial on Algorithms and Data Structures	2	
<b>INF-BSC-P09</b>	<b>Databases I</b>	<b>6</b>	
INF-BSC-P09.1	Lecture on Databases I	4	
INF-BSC-P09.2	Tutorial on Databases I	2	
<b>INF-BSC-P10</b>	<b>Computer Architecture</b>	<b>6</b>	
INF-BSC-P10.1	Lecture on Computer Architecture	4	
INF-BSC-P10.2	Tutorial on Computer Architecture	2	
<b>DAT-B-PROB</b>	<b>Data Science 1 (Probability)</b>	<b>6</b>	
DAT-B-PROB.1	Lecture on Probability	3	
DAT-B-PROB.2	Tutorial on Probability	3	
<b>INF-BSC-P11</b>	<b>Software Engineering</b>	<b>6</b>	
INF-BSC-P11.1	Lecture on Software Engineering	4	
INF-BSC-P11.2	Tutorial on Software Engineering	2	

Module Position	Subject Area	Credits	Notes
<b>INF-BSC-P12</b>	<b>Operating Systems</b>	<b>6</b>	
INF-BSC-P12.1	Lecture on Operating Systems	4	
INF-BSC-P12.2	Tutorial on Operating Systems	2	
<b>INF-BSC-P13</b>	<b>Foundations of IT Security</b>	<b>6</b>	
INF-BSC-P13.1	Lecture on Foundations of IT Security	4	
INF-BSC-P13.2	Tutorial on Foundations of IT Security	2	
<b>INF-BSC-P14</b>	<b>Mathematics 2 FIDS - Linear Algebra II and Calculus I</b>	<b>6</b>	
INF-BSC-P14.1	Lecture on Linear Algebra II	2	
INF-BSC-P14.2	Tutorial on Linear Algebra II	1	
INF-BSC-P14.3	Lecture on Calculus I	2	
INF-BSC-P14.4	Tutorial on Calculus I	1	
<b>INF-BSC-P15</b>	<b>Software Project</b>	<b>10</b>	
INF-BSC-P15.1	Software Project	8	
INF-BSC-P15.2	Seminar on Project Management and Team Work	2	
<b>INF-BSC-P16</b>	<b>Mathematics 3 FIDS - Calculus II and Numerical Analysis</b>	<b>6</b>	
INF-BSC-P16.1	Lecture on Calculus II	2	
INF-BSC-P16.2	Tutorial on Calculus II	1	
INF-BSC-P16.3	Lecture on Numerical Analysis	2	
INF-BSC-P16.4	Tutorial on Numerical Analysis	1	
<b>DAT-B-ML</b>	<b>Machine Learning</b>	<b>10</b>	
DAT-B-ML.1	Lecture on Machine Learning	5	
DAT-B-ML.2	Tutorial on Machine Learning	5	
<b>INF-BSC-P17</b>	<b>Digital Image Processing I</b>	<b>6</b>	
INF-BSC-P17.1	Lecture on Digital Image Processing I	4	
INF-BSC-P17.2	Tutorial on Digital Image Processing I	2	
<b>INF-BSC-P18</b>	<b>Computer Networks and Distributed Systems</b>	<b>6</b>	
INF-BSC-P18.1	Lecture on Computer Networks and Distributed Systems	4	
INF-BSC-P18.2	Tutorial on Computer Networks and Distributed Systems	2	
<b>INF-BSC-P19</b>	<b>Lecture Seminar</b>	<b>6</b>	
INF-BSC-P19.1	Seminar Computer Science (different topics)	6	
<b>INF-BSC-P20</b>	<b>Bachelor Thesis</b>	<b>14</b>	
INF-BSC-P20.1	Seminar on Scientific Writing	2	
INF-BSC-P20.2	Working on the Bachelor Thesis	12	

## Compulsory Elective Modules

Module Position	Subject Area	Credits	Notes
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In total, 30 credit points (5 modules) from the compulsory elective modules must be successfully completed, with a minimum of 12 credit points (2 modules) from the specialist field of General Computer Science.

### Specialist Field: General Computer Science

Module Position	Subject Area	Credits	Notes
<b>INF-BSc-WP01</b>	<b>Students Mentoring</b>	<b>3</b>	
INF-BSc-WP01.1	Seminar on Time and Self-Management	1	
INF-BSc-WP01.2	Seminar on Mentoring	2	
<b>INF-BSc-WP02</b>	<b>Introduction to Cryptography</b>	<b>6</b>	
INF-BSc-WP02.1	Lecture on Introduction to Cryptography	4	
INF-BSc-WP02.2	Tutorial on Introduction to Cryptography	2	
<b>INF-BSc-WP03</b>	<b>Special Topics of General Computer Science</b>	<b>6</b>	
INF-BSc-WP03.1	Lecture on Special Topics of General Computer Science	4	
INF-BSc-WP03.2	Tutorial on Special Topics of General Computer Science	2	
<b>INF-BSc-WP04</b>	<b>Theoretical Computer Science II</b>	<b>6</b>	
INF-BSc-WP04.1	Lecture on Theoretical Computer Science II	4	
INF-BSc-WP04.2	Tutorial on Theoretical Computer Science II	2	
<b>INF-BSc-WP05</b>	<b>Logic and Formal Methods</b>	<b>6</b>	
INF-BSc-WP05.1	Lecture on Logic and Formal Methods	4	
INF-BSc-WP05.2	Tutorial on Logic and Formal Methods	1	
INF-BSc-WP05.3	Lab on Logic and Formal Methods	1	
<b>INF-BSc-WP06</b>	<b>Constraint Modelling and Programming</b>	<b>6</b>	
INF-BSc-WP06.1	Lecture on Constraint Modelling and Programming	4	
INF-BSc-WP06.2	Tutorial on Constraint Modelling and Programming	1	
INF-BSc-WP06.3	Lab on Constraint Modelling and Programming	1	
<b>INF-BSc-WP07</b>	<b>Lecture Seminar</b>	<b>6</b>	
INF-BSc-WP07.1	Seminar Computer Science (different topics)	6	
<b>INF-BSc-WP08</b>	<b>Databases II - Architectures and Data Structures of Modern Database Systems</b>	<b>6</b>	
INF-BSc-WP08.1	Lecture on Databases II	4	
INF-BSc-WP08.2	Tutorial on Databases II	2	
<b>INF-BSc-WP09</b>	<b>Internship</b>	<b>6</b>	
INF-BSc-WP09.1	Internship Computer Science	6	

Module Position	Subject Area	Credits	Notes
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### Specialist Field: Special Topics of Applied Computer Science

INF-BSc-ANW	Special Topics of Applied Computer Science	6	
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### Specialist Field: Data Science

DAT-B-INFER	Data Science 2 (Inference)	6	
DAT-B-DE	Data Engineering	6	
DAT-B-MODEL	Data Science 3 (Modeling)	6	
DAT-B-CON-QUANT	Connector Quantum Mechanics and Information Processing	6	
DAT-B-ELM-TIME	Time Series	6	

### Specialist Field: Human Information Behaviour

DAT-B-CON-NLE1	Connector Natural Language Engineering 1	6	
IW-BA-M03	Understanding Information Behaviour	6	
DAT-B-CON-NLE2	Connector Natural Language Engineering 2	6	
IW-BA-M06	Introduction to Information Retrieval	6	
INF-HIB-M01	Foundations of Symbolic Artificial Intelligence	6	
INF-HIB-M02	Recommender Systems	6	

### Specialist Field: Media Informatics

MEI-BA-M05	Usability Engineering	6	
MEI-BA-M06	Multimedia Technology	6	
MEI-BA-M07	Multimedia Engineering	6	
MEI-BA-M08	Applied Media Informatics I	6	
MEI-BA-M09	Applied Media Informatics II	6	

### Specialist Field: Management Information Systems

WI-BSc-IBIS-M01a	Digital Business I: Business Models and Processes	6	
WI-BSc-IBIS-M02a	Digital Business II: Networks and Digital Markets	6	
WI-BSc-AWI-M04	Information Systems Architecture	6	
DAT-B-CON-PROC-CESS	Process Science	6	
WI-BSc-IBIS-M06	Explainable AI	6	
WI-BSc-WI-M04	Methods and Management of Software Development	6	



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However, no guarantee is provided for the accuracy of the information.